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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,782	11/26/2003	Hangching Grant Wang	03-0459 (BOE 0456 PA)	9058

7590 06/15/2005
Jeffrey J. Chapp
Suite 250
28333 Telegraph Road
Southfield, MI 48034

EXAMINER

HOLZEN, STEPHEN A

ART UNIT	PAPER NUMBER
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3644

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/723,782	Applicant(s) WANG ET AL.	
	Examiner Stephen A. Holzen	Art Unit 3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. The examiner has considered the arguments mailed on 5/6/2005 and considers those arguments persuasive. However, the examiner presents the following restriction requirement.

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claim 1-13, 23-34, drawn to method of calibration, classified in class 244, subclass 79.
- II. Claims 14-22, 35-40, drawn to gyro calibration system, classified in class 244, subclass 171.

3. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the method can be practiced with a different apparatus such as one that does not have an attitude estimator that determines a roll gyro bias. Further the apparatus can be practice by a different method, such as Navigating a spacecraft

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

6. Upon election of one of groups I or II above, applicant is required under 35 U.S.C. 121 to elect a single disclosed species of controlling means for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

- a. Onboard flight software only
- b. Ground based software only
- c. The combination of onboard and ground based software

7. Upon election of one of groups I or II above, applicant is required under 35 U.S.C. 121 to elect a single disclosed species of attitude determinates (see ¶0034) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

- d. Onboard sensors
- e. Telemetry / Communication signals

8. If applicant elects group e above, then the applicant is further required under 35 U.S.C. 121 to elect a single disclosed species of Communication Stations, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

- f. Ground Stations
- g. Other Spacecraft Stations

9. Upon election of one of groups I or II above, applicant is further required under 35 U.S.C. 121 to elect a single disclosed species of reorientation mechanisms (see ¶0036) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

- h. Thrusters only
- i. Liquid Apogee Motor/Engine (LAM) only
- j. Perigee Motor/Engine (PM) only
- k. Combinations thereof (i.e. thruster and LAM only, thrusters and PM only, LAM and PM only, etc.)

10. Upon election of one of groups I or II above, applicant is further required under 35 U.S.C. 121 to elect a single disclosed species of step for determining gain scheduling signal for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

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- l. Threshold of yaw transient errors only
- m. Sun sensors azimuth and elevation measurements only
- n. Using ephemeris only
- o. Combinations thereof consisting of yaw transient error sun sensors and elevation only, ephemeris and sun sensors only, etc.

11. Upon election of one of groups I or II above, applicant is further required under 35 U.S.C. 121 to elect a single disclosed species of steps of gain scheduling for attitude estimation, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

- p. Disabling one or more gyro calibration procedures only
- q. Varying attitude and gyro update gain only
- r. Resetting attitude and gyro co-variance only

12. If applicant elects group p above, applicant is further required under 35 U.S.C. 121 to elect a single disclosed species of the direction of disablement (see ¶0055) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

- s. Yaw only
- t. Yaw and Roll only
- u. Yaw, Roll and Pitch only

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13. If applicant elects group q above, applicant is further required under 35 U.S.C. 121 to elect a single disclosed species of calibration type to be performed with gain scheduling (see ¶0055 line 15) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

- v. Yaw only
- w. Yaw and Roll only
- x. Yaw, Roll and Pitch only

14. If applicant elects group r above, applicant is further required under 35 U.S.C. 121 to elect a single disclosed species of calibration type to be performed with covariance resetting (see ¶0055 line 15) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

- y. Yaw only
- z. Yaw and Roll only
- aa. Yaw, Roll and Pitch only

15. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims

readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen A. Holzen whose telephone number is 571-272-6903. The examiner can normally be reached on M-F 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey E. Behrend can be reached on 571-272-6871. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PETER M. POON
SUPERVISORY PATENT EXAMINER
6/13/05